

Appl. No.: 10/804,746
Amdt. Dated July 3, 2008
Reply to Office Action of June 3, 2008

REMARKS/ARGUMENTS

Claims 1-16 are pending. Claims 1, 7, and 13-16 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,420,165 to Weinstein in view of U.S. Patent No. 6,521,444 to Numata. Claims 1-4, 7-10, and 13-16 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,723,242 to Ohkata et al. in view of Weinstein and Numata. Claims 5, 6, 11, and 12 were rejected as unpatentable over Ohkata in view of Weinstein and Numata, and further in view of U.S. Patent No. 5,563,066 to Buchanan.

Applicant appreciates the careful and thorough examination as reflected in the Office Action. As explained during the telephone interview between the Examiner and Applicant's undersigned representative on June 30, 2008, it is submitted that the rejections have overlooked important distinctions between the claimed invention and the teachings of the cited references. The substance of the undersigned's remarks during that interview is captured in the remarks below.

Claim 1 is directed to "A system for cleaning a contaminated matter comprising dioxins by decomposing the dioxins in the contaminated matter, wherein the system comprises a reaction tank holding at least:

at least one of *crushed cells and fractions of the crushed cells* comprising a *pellicle* of *Bacillus midousuji* *cultured in the presence of a chlorinated aromatic compound which has a substituent comprising an oxygen atom bonded to an aromatic ring and having a chloro group bonded to an aromatic ring*, wherein the at least one of crushed cells and fractions of the crushed cells comprising the pellicle of *Bacillus midousuji* breaks the ether bond of the structure of the dioxins;

the contaminated matter; and

an aqueous medium."

Claim 7 is similarly directed to "A method of cleaning a contaminated matter comprising dioxins by decomposing the dioxins in the contaminated matter, wherein the method comprises:

mixing at least one of crushed cells and fractions of the crushed cells comprising a pellicle of Bacillus midousuji cultured in the presence of a chlorinated aromatic compound which has a substituent comprising an oxygen atom bonded to an aromatic ring and having a chloro group bonded to an aromatic ring, the contaminated matter, and an aqueous medium, wherein the at least one of crushed cells and fractions of the crushed cells comprising the pellicle of Bacillus midousuji breaks the ether bond of the structure of the dioxins."

Claim 13 is similarly directed to "A preparation for decomposing dioxins, comprising *at least one of crushed cells and fractions of the crushed cells* which comprise a pellicle of Bacillus midousuji cultured in the presence of a chlorinated aromatic compound having a substituent comprising an oxygen atom bonded to an aromatic ring and having a chloro group bonded to an aromatic ring, wherein the at least one of crushed cells and fractions of the crushed cells comprising the pellicle of Bacillus midousuji breaks the ether bond of the structure of the dioxins."

Thus, the claimed system, method, and preparation employ *crushed cells/fractions comprising a pellicle of Bacillus midousuji* that has been *cultured in the presence of a chlorinated aromatic compound having a substituent comprising an oxygen atom bonded to an aromatic ring and having a chloro group bonded to an aromatic ring*.

Thus, it is implicit in each of the independent claims that the crushed cells/fractions of Bacillus midousuji are prepared by a process comprising, in chronological order, (1) culturing the Bacillus midousuji in the presence of a chlorinated aromatic compound having a substituent comprising an oxygen atom bonded to an aromatic ring and having a chloro group bonded to an aromatic ring, then (2) crushing the cells to yield the crushed cells and fractions of cells comprising a pellicle of Bacillus midousuji, and finally (3) using the crushed cells/fractions to break the ether bond of the structure of the dioxins. This is clear because, once the cells are crushed, no further "culturing" or growth can take place.

The claimed invention is not remotely suggested by the cited references. Column 2 line 66 through column 3 line 25 of Weinstein merely describes two cultures of *Bacillus midousuji* (designated SH2A and SH2B) that were deposited with the American Type Culture Collection (ATCC). Column 8, at lines 23-67, indicates that these strains of *Bacillus midousuji* are good extracellular secretors of proteins and thus may be good producers of industrial enzymes (while still alive, of course).

Column 17, lines 66-67 of Weinstein relate to an experiment in which live *Bacillus midousuji* of the SH2B strain were used to degrade dibenzofuran.

Nothing in Weinstein suggests that the *Bacillus midousuji* were “cultured in the presence of a chlorinated aromatic compound . . .” as claimed, nor does Weinstein suggest crushing the cells to yield crushed cells/fractions prior to treating the dibenzofuran.

It is believed that the rejections are based upon an interpretation of Weinstein whereby the actual growth of the *Bacillus midousuji* that takes place when the live organisms are added to the dibenzofuran constitutes “culturing” of the organisms in the presence of a chlorinated aromatic compound. However, this interpretation improperly ignores the claim language that it is the pellicle of the crushed cells/fractions of *Bacillus midousuji* that breaks the ether bond of the structure of the dioxins, and that the *Bacillus midousuji* were (prior to being crushed) cultured in the presence of a chlorinated aromatic compound.

While Weinstein describes using live *Bacillus midousuji* to treat dibenzofuran, nowhere is there any suggestion to take the resulting *Bacillus midousuji* cells (even if they were thereby deemed to be “cultured in the presence of a chlorinated aromatic compound . . .” as required by the claims, which is disputed), crush them to yield crushed cells/fractions, and then use the crushed cells/fractions to further treat dioxins. Numata certainly does not suggest modifying Weinstein in that fashion.

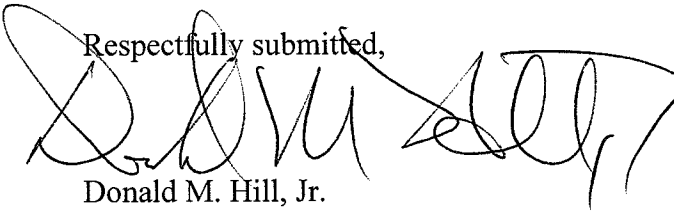
Accordingly, it is submitted that the cited references completely fail to teach or suggest the claimed system, method, and preparation.

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Conclusion

Based on the above remarks, Applicant respectfully submits that the cited references do not render the pending Claims 1-16 unpatentable, and therefore the application is in condition for allowance.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefor (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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